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## A Reemployment Incentives Experiment in Canada: Issues in Design, Administration and Evaluation

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# A Reemployment Incentives Experiment in Canada: Issues in Design, Implementation and Evaluation

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## 1. Preface

This paper about a Canadian reemployment incentives experiment was written at the request of the Social Research and Demonstration Corporation for a one day conference scheduled for July 21, 1994 to be hosted by the Manpower Demonstration Research Corporation in New York City. The aim of the paper is to clearly state recommendations concerning treatment design, sample design, implementation, administration, and evaluation for the experiment being planned by Human Resources Development Canada.

A comprehensive packet of conference materials has been compiled and provided to conference participants. To maintain brevity this paper presumes exposure to that material. In particular, readers of this paper should be familiar with the concept design paper prepared by the Innovations Branch of Employment and Immigration Canada and the W.E. Upjohn Institute for Employment Research in March of 1992, and the paper on treatment design for a cash reemployment bonus experiment written by Howard Bloom for this conference.

## 2. Introduction

The unemployment insurance (UI) program in Canada is one of the world's most generous. It is also believed to prolong spells of unemployment unnecessarily. The nationwide field experiment being planned will operate within the UI system. The experiment is being undertaken to test if various possible UI program features encourage more intensive job search and earlier acceptance of job offers by UI claimants. The hope is that new ways to significantly reduce the length of time that UI claimants remain unemployed and draw UI benefits will be identified.

The recent general rise in unemployment rates among industrialized countries has been accompanied by an effort to increase the share of public resources spent on active relative to passive labor market support policies.<sup>1</sup> This change has come in response to the rise in the proportion of the unemployed who are permanently separated from their job and unlikely to return to their previous industry or occupation. In an effort to restrain public spending and minimize tax burdens, particular active efforts have been made to improve reemployment opportunities for displaced workers. Services are targeted to the displaced, partly because they are frequently eligible for a long duration of unemployment compensation and have a high probability of benefit exhaustion.

The reemployment incentives considered in the earlier concept design paper were three: (1) a cash bonus--a lump sum payment in addition to regular UI entitlement, (2) a partial cash-out--an advance lump sum payment out of the regular UI entitlement, and (3) a

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<sup>1</sup>Leigh (1994, Chapter 6, p. 4) says that in particular "Britain, Canada, and Australia--have in common recent major restructuring of their employment and training programs involving the shift of resources from passive to active labor market policies."

wage supplement--periodic cash payments to supplement earnings on a qualifying new job. These three interventions are the focus of this paper.

Other possible UI program modifications include: additional job search assistance, stiffened work search requirements, and referral to job skill training. While each of these interventions has been shown to have potential, all have difficulties in consistently repeating the experimental conditions for random trials. In recent years Canada has provided job search skills training and job club organization modules to many of the newly emerging market economies in Eastern Europe. These modules may be sufficiently standardized to be repeated consistently. Canada already has the *Active Job Search* program, whereby UI claimants identified to have skills in demand are required to submit a *Job Search Record* summarizing reemployment efforts every two weeks to maintain UI benefit eligibility. Such a program could be experimentally extended. Experimentally broadening formal work search requirements would be effective if local labor market information systems are deficient in assigning claimants to *Active Job Search*. However, it would probably only result in fruitless job search, amounting to an annoyance to employers. Furthermore, previous experiments in UI suggest that additional supportive services affect claimants merely as added work search requirements. Finally, evaluation of job skill retraining should be viewed as a separate project.

### 3. The Context of a Canadian Reemployment Incentives Experiment

To place the discussion of a Canadian reemployment incentives experiment in context two tables are presented. Table 1 summarizes the national labor market situation over the past 20 years. In 1992 the national unemployment rate approached levels reached during the major recession of the early 1980s. A distinguishing feature of the more recent period is that the current average duration of unemployment is nearly 4 weeks longer than in the earlier period. Obviously, the longer duration means a greater burden on the UI system.

Table 2 summarizes results from The Labour Force Survey conducted by Statistics Canada on the regional distribution of the labor force, unemployment, and UI claims among the provinces. It is evident that the unemployment problems are most severe in the Eastern provinces than the Western ones.

### 4. Design of the Reemployment Bonus Offers

#### 4.1 A Small Number of Treatments

As suggested by Howard Bloom, it is most important that the effect of each treatment studied can be estimated with statistical precision. Therefore, it is better to run an experiment with only a few treatments and large samples in each treatment than to run an

Table 1: Labor Force and Unemployment Trends in Canada 1974-93

Year	Labor Force	Unemployment Rate	Average Duration of Unemployment in Weeks	Long Term Unemployed (over 27 weeks)	<u>Long Term Unemployed Unemployed</u>
1974	9,639,000	5.3		72,000	14.0
1975	9,974,000	6.9		0	0.0
1976	10,203,000	7.1	13.9	0	0.0
1977	10,500,000	8.1	14.5	0	0.0
1978	10,895,000	8.3	15.5	0	0.0
1979	11,231,000	7.4	14.8	0	0.0
1980	11,573,000	7.5	14.7	0	0.0
1981	11,899,000	7.5	15.1	140,000	15.6
1982	11,926,000	11.0	17.3	259,000	19.8
1983	12,109,000	11.8	21.0	401,000	28.0
1984	12,316,000	11.2	21.6	361,000	26.1
1985	12,532,000	10.5	21.7	336,000	25.6
1986	12,746,000	9.5	20.3	286,000	23.5
1987	13,011,000	8.8	20.5	271,000	23.6
1988	13,275,000	7.8	18.3	208,000	20.2
1989	13,503,000	7.5	16.4	171,000	16.8
1990	13,681,000	8.1	16.9	205,000	18.5
1991	13,757,000	10.3	19.4	330,000	23.3
1992	13,797,000	11.3	22.6	438,000	28.1
1993	13,946,000	11.2	25.1	480,000	30.7

Source: The Labor Force Survey, *Canadian Social Trends, Spring 1991* and *Canadian Economic Observer, Historical Statistical Supplement, 1991-92*.



Table 2: Labor Force, Unemployment, and UI Claims in Canada by Province for Recent Years

	1989	1990	1991	1992	1993	1994 1st Qtr
<b>Newfoundland</b>						
Labor Force (thousands)	238	242	241	239	233	220
Unemployment Rate (percent)	15.8	17.1	18.4	20.2	20.2	20.1
Avg. Weekly UI Claims (thousands)	59.0	56.8	60.5	61.5	54.1	52.0
<b>Prince Edward Island</b>						
Labor Force (thousands)	63	65	64	64	65	64
Unemployment Rate (percent)	14.1	14.9	16.8	17.7	17.7	22.8
Avg. Weekly UI Claims (thousands)	9.6	9.0	10.3	11.1	11.0	12.4
<b>Nova Scotia</b>						
Labor Force (thousands)	414	424	422	416	418	409
Unemployment Rate (percent)	9.9	10.5	12.0	13.1	14.6	15.4
Avg. Weekly UI Claims (thousands)	36.8	38.8	43.1	44.0	42.5	43.4
<b>New Brunswick</b>						
Labor Force (thousands)	325	331	327	331	333	310
Unemployment Rate (percent)	12.5	12.1	12.7	12.8	12.6	14.1
Avg. Weekly UI Claims (thousands)	43.8	43.9	47.7	49.4	46.9	49.5
<b>Quebec</b>						
Labor Force (thousands)	3343	3399	3392	3385	3404	3358
Unemployment Rate (percent)	9.3	10.1	11.9	12.8	13.1	13.7
Avg. Weekly UI Claims (thousands)	254.1	275.6	307.6	316.7	296.9	297.6
<b>Ontario</b>						
Labor Force (thousands)	5214	5268	5276	5286	5362	5269
Unemployment Rate (percent)	5.1	6.3	9.6	10.8	10.6	11.1
Avg. Weekly UI Claims (thousands)	138.2	198.2	269.4	284.5	256.0	228.2
<b>Manitoba</b>						
Labor Force (thousands)	538	544	541	535	540	537
Unemployment Rate (percent)	7.5	7.2	8.8	9.6	9.2	11.2
Avg. Weekly UI Claims (thousands)	24.8	24.2	26.8	26.1	23.9	23.8
<b>Saskatchewan</b>						
Labor Force (thousands)	482	483	484	480	478	464
Unemployment Rate (percent)	7.4	7.0	7.4	8.2	8.0	8.6
Avg. Weekly UI Claims (thousands)	20.5	19.0	20.4	21.4	19.7	20.0
<b>Alberta</b>						
Labor Force (thousands)	1308	1324	1357	1370	1384	1373
Unemployment Rate (percent)	7.2	7.0	8.2	9.5	9.6	9.6
Avg. Weekly UI Claims (thousands)	55.8	54.2	64.1	70.1	64.2	59.5
<b>British Columbia</b>						
Labor Force (thousands)	1578	1601	1652	1694	1728	1762
Unemployment Rate (percent)	9.1	8.3	9.9	10.4	9.7	10.8
Avg. Weekly UI Claims (thousands)	95.4	95.6	109.6	108.5	101.4	96.2

experiment with many treatments and small sample sizes. This point is relevant to all treatment designs including bonus, cash-out, and wage supplements.

#### 4.2 The Bonus Amount

Clearly the size of the bonus offer affects the likelihood of returning to work. Very large bonus offers also make precise estimation of impacts more likely. However, the size of the bonus offers tested must be reasonable policy options, which might survive political scrutiny. Evidence from Washington suggests that claimants below the maximum weekly benefit rate (WBR) responded more strongly to the bonus offer. This suggests that the bonus should be set as a multiple of the WBR, in order to best understand behavioral response.

The suggestion of 5 and 10 times the WBR is a good one.

#### 4.3 Search Period

Before the experiments with variable search periods were conducted, Mortenson (1988) predicted that longer search periods would result in smaller treatment effects. However the observed effect is the opposite. That is, longer search periods resulted in bigger treatment impacts. Part of this difference may have been due to the fact that institutional rigidities involved in finding and starting a job created difficulties for those given only 3 or 4 weeks to search. It is also appropriate to set the search period to mesh with other standard CEC practices such as the *Active Job Search* program which operates on a two-week cycle.

Given that the entitled duration of UI benefits in Canada depends more on labor demand in the region than an individual's prior earnings experience, it is not necessary to set search periods as multiples of entitled benefit durations. Sharper experimental response will result if the search period is set at a fixed number of weeks. With the average duration of unemployment at about 25 weeks, the majority of eligible claimants qualifying for 50 weeks of benefits, and national unemployment exceeding 11% reasonable search periods about 20% and 40% of entitled duration might be tested.

Two search periods might be considered: 10 and 20 weeks.

#### 4.4 Fixed Reemployment Period

All US experiments set the reemployment period at approximately four months. This was deemed long enough to ensure that qualifying reemployment did not occur in seasonal work. To simplify administration of the experiment the reemployment period should be set in terms of a fixed number of weeks.

A single reemployment period set at 20 weeks might be used.

#### 4.5 What is the definition of return to work?

To have consistent evaluation of bonus eligibility the definition of qualifying reemployment must be clearly specified. If a legal definition of full time employment in the Canadian UI law exists, it should be used. It is also possible to set a fixed number of hours--say 35 per week--to define a full-time job. However, the natural definition within the UI system is to require earnings on the new job sufficient to result in a zero UI payment under the partial benefit schedule--earnings disregard of  $.25*WBR$  and 100% tax thereafter.

### 5. The Partial Cash-out

#### 5.1 A New Treatment for Experimenters

The partial cash-out offer is something not previously tested, but it is much more likely to be implemented by policy makers than a straight bonus. It was not tried in the US experiments because, from the perspective of claimants' legal rights, it was an easier matter to experiment with something like the bonus which is an add on to basic benefit rights. That HRD Canada is interested in testing the cash-out option is good, particularly if the legal issues involved in conducting the experiment do not prevent or delay random trials.

#### 5.2 Larger Sample Sizes

Howard Bloom is probably correct that a partial cash-out offer is likely to have a smaller effect for a given dollar amount and search period than a cash bonus offer. However, instead of increasing the offer amount of the cash-out treatments, I would favor simply increasing the sample sizes for the cash-out offers relative to identical bonus offers. Increased sample sizes should be possible since the cash-out treatments would be cheaper to the UI fund per offer than the bonus offers. Having cash-out offers with the same other parameters as the bonus offers would allow clear assessment of the effect of the cash-out offer.

Incentive Amounts:  $5*WBR$  and  $10*WBR$   
Search Periods: 10 weeks and 20 weeks  
Reemployment Period: 20 weeks

The above list specifies four cash-out treatments, and is the exact same list as suggested for the bonus treatments. Because the cash out treatments should be cheaper to run, it may be possible to eliminate one or two of the bonus offers, say the ( $10*WBR$ , 10 week) or the ( $5*WBR$ , 20 week) since the remaining comparable offers can be used to form a bridge between the bonus and cash-out offers to estimate impacts.

### 5.3 Bundling of Treatments

It has been suggested that some additional features be added to some of the offers. Possibilities include job search assistance and referral to retraining. This may be done provided that clear evaluation possibilities are preserved. It should always be possible to compare each intervention with the baseline program. Unfortunately this was not the case in the New Jersey experiment (Corson et al., 1989), where the only treatment offering a cash bonus also included a JSA component. At a minimum, each separate intervention should have a separate treatment, with treatments having compound interventions added as budget limits permit.

## 6. The Wage Supplement

### 6.1 The Appeal of the Wage Supplement

In accepted usage a *wage subsidy* means a payment directly to an employer, and a *wage supplement* means a payment directly to a worker. There is much less evidence about the latter, but results from the wage subsidy suggest that a supplement may be more effective. The main appeal of the wage supplement is that it is unlikely to create the type of stigma which employers may attribute to workers for whom they receive wage subsidies.

Most programs for the unemployed are either income support or labor supply enhancing. The wage subsidy is a labor demand stimulus. But regardless of the form of delivery of the subsidy to employers, it apparently has a stigmatizing effect on workers. An obvious alternative is the wage supplement which is paid directly to workers. This type of program has even been recommended to help welfare recipients, who might face the most severe stigma, gain reemployment.<sup>2</sup>

New entrants to the labor market and those who recently left other jobs frequently pass up reasonable job offers because they over estimate their value to potential employers. That is, they set their reservation wages unrealistically high.<sup>3</sup> While both the new entrant and the job leaver may bring general skills, neither brings firm specific skills needed in their new place of work. A wage supplement program where the payment is made directly to the worker during the initial period of employment, perhaps one year, may help shorten unemployment durations by inducing job searchers to lower their reservation wages. During the period of the wage supplement, workers will gain job specific skills thereby increasing their value to the firm and qualifying them for any available wage increases. A wage

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<sup>2</sup>See for example Lerman (1985).

<sup>3</sup>The reservation wage is the minimum wage rate that a worker will accept to begin a new job.

supplement paid directly to the worker removes the state from employee-employer interactions and greatly reduces the chance of a stigma affecting an employer's hiring decision. Ideally, by the time the wage supplement expires a worker's earnings would have risen within the firm. In the meantime society has benefitted from added production, government has gained added tax revenues, and the unemployment insurance system has saved benefit payments.

## 6.2 Related Research

Among the four trials of wage subsidies in the United States two operated as government programs run through the tax system and two worked as voucher experiments. During the late 1970s and early 1980s the New Jobs Tax Credit and the Targeted Jobs Tax Credit allowed employers to reduce tax payments by a fraction of the amount paid to workers hired under the programs. Hamermesh and Rees (1984, p. 99) say that New Jobs Tax Credits were taken for one-third of all the new jobs created during the period it was in effect, but Perloff and Wachter (1979) estimate that it resulted in just 3 percent more jobs than would have been created without the program. The Targeted Jobs Tax Credit (TJTC) was intended to increase employment among certain targeted disadvantaged groups. Hollenbeck and Wilke (1991) find that the TJTC increased labor market success of "nonwhite male youth, but is stigmatizing for eligible individuals from other race/sex groups." This finding that a wage subsidy acts as a stigma carries through to the experimental studies.

A targeted wage subsidy was operated as a field experiment with random trials in 1980-81 by the U.S. Department of Labor in Dayton, Ohio. Burtless (1985, p. 106) reported "the results show conclusively that workers known to be eligible for targeted wage subsidies were significantly less likely to find jobs than were otherwise identical workers whose eligibility for subsidies was not advertised." Burtless (1985, p. 105) "speculates that the vouchers had a stigmatizing effect and provided a screening device with which employers discriminated against economically disadvantaged workers."

Another experiment testing an intervention which amounted to a wage subsidy was not restricted to economically disadvantaged workers, but may have also stigmatized job seekers. Woodbury and Spiegelman (1987) report that for the Illinois Reemployment Bonus Experiment, cash bonuses paid directly to persons who gain reemployment have a powerful effect in reducing the duration of unemployment. Yet if a cash payment for hiring a job seeker is made to employers, the effect is almost nil. Employers may be reluctant to hire workers who present a voucher for payment from the state because it signals that the worker may have "hidden" characteristics which hinder their finding employment without a state subsidy.

## 6.3 The Previously Suggested Approach to Treatments

The wage supplement operates to reduce or prevent loss of income to job seekers who take jobs that provide lower weekly earnings or lower hourly wage rates than experienced

prior to layoff. The intent is to encourage laid off workers to be realistic about their earnings prospects on new jobs. A wage supplement is unlikely to induce workers to take jobs that would be unacceptable, but may encourage them to take satisfactory, but less remunerative jobs, sooner than otherwise. A wage supplement scheme has two major components: the weekly supplement amount, and the constraints imposed on either the weekly supplement amount or the total amount of the supplement, or both. To make the idea of a wage supplement concrete four examples of possible designs are offered:

1. Pre-unemployment weekly earnings minus post-unemployment weekly earnings.
2. 80% of pre-unemployment weekly earnings minus post-unemployment weekly earnings.
3. 80% of the pre-unemployment minus post-unemployment earnings difference.
4. Post-unemployment hours x (pre-unemployment hourly wage rate minus the post-unemployment hourly wage rate).
5. Pre-unemployment weekly earnings minus post-unemployment weekly earnings up to the WBR.
6. Pre-unemployment weekly earnings minus post-unemployment weekly earnings up to 80% of the WBR.

Other designs are also possible. This type of design may be most necessary for claimants with a history of particularly high earnings and a potential for future high earnings. If on the other hand a program is sought which would only subsidize earnings below \$1,000 per week a simpler approach, which is only a slight modification of existing procedures might be adopted. This is discussed in the following sub-section.

#### 6.4 Simply Reforming the Present System

An important feature of the wage supplement is that it could be easily administered through the existing facilities of the local and provincial CEC offices with computations and payments made in a fashion similar to that done for unemployment benefit recipients who report earnings on their bi-weekly claimant report. This approach minimizes the troublesome problems of stigma since employers are left out of the transaction.

Because of the way existing UI rules are structured, the most natural way to implement a wage supplement experiment or program would be simply to modify the UI partial benefits scheme so as to improve the incentive for beneficiaries to work their way off the UI system. All mechanisms for knowing the prior earnings, receiving timely reports on current weekly earnings, and computer support for figuring payments and mailing checks exists in the CEC network. Furthermore, because the WBR is equal to 57% of previous

earnings for earnings up to \$780 per week--the maximum WBR is \$445, and the number of reasonable wage supplement schemes which can be developed within this system is huge. By selecting the appropriate earnings disregard and tax on earnings many different desired wage supplement systems can be tried or implemented with very little difficulty for claimants or clerks (insurance agents).

As mentioned above the existing partial benefit system is structured as follows:

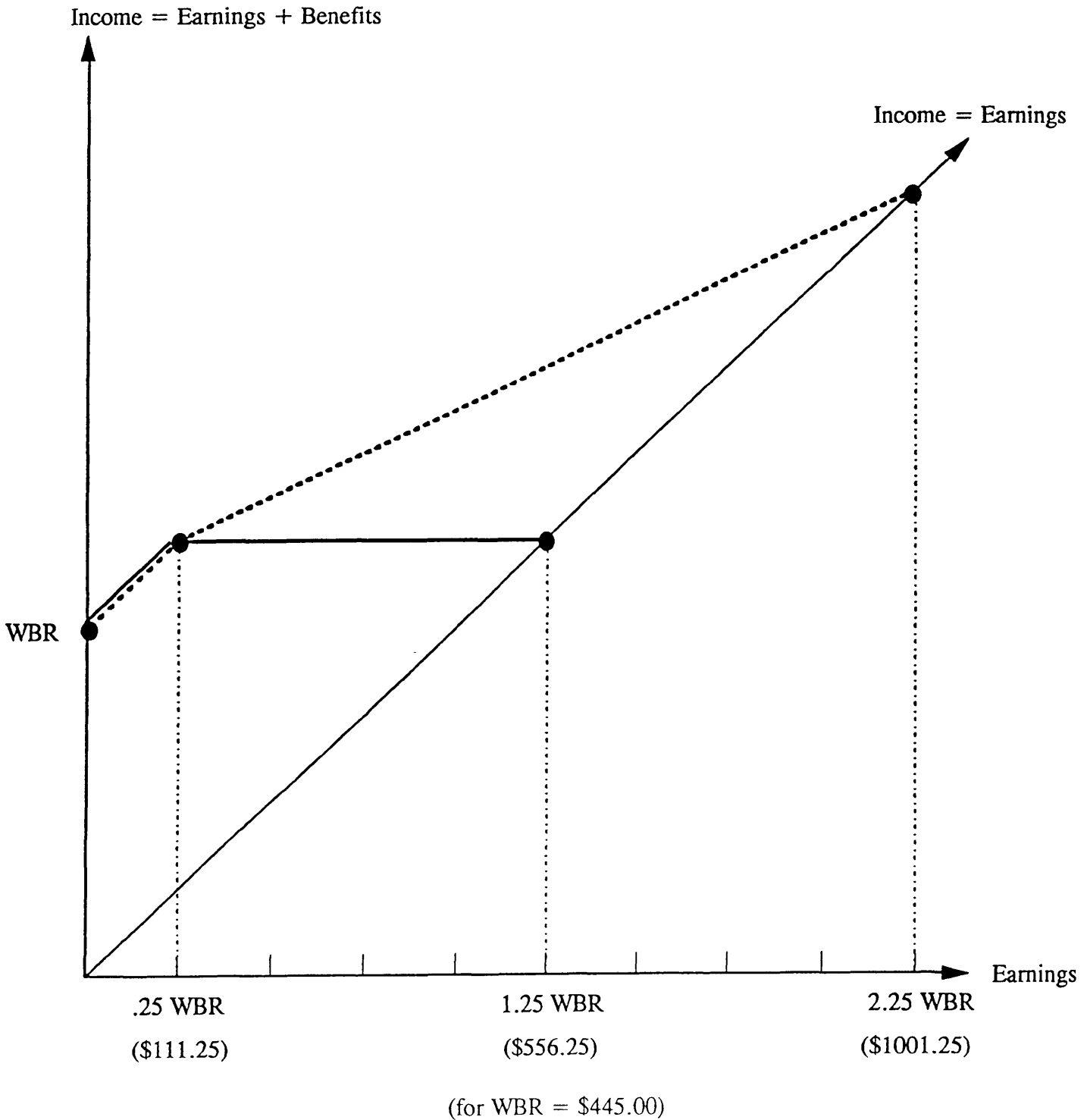
Earnings Disregard =  $.25 * WBR$   
Tax on Earning above Disregard = 100%

This system provides a strong disincentive for part-time or lower wage work at more than just a minimal level. This system has an earnings break-even level of  $1.25 * WBR$  (or \$569 at the maximum WBR of \$445) and no incentive for further work beyond earnings of  $.25 * WBR$ . Modification of the system to an alternative partial benefit system like the following:

Earnings Disregard =  $.25 * WBR$   
Tax on Earning above Disregard = 50%

may induce many people to begin jobs which have low initial earnings but good growth potential. This system has an earnings break-even level of  $2.25 * WBR$  (or \$1,001 at the maximum WBR of \$445) and a good incentive for further work beyond earnings of  $.25 * WBR$ . The change in the income expansion path suggested by this change is presented graphically in Figure 1.

Figure 1  
 Claimant Earnings Under the Existing  
 and an Alternative Partial Benefit System



—	Existing System: Earnings Disregard = $.25 * WBR$ ; Tax Rate = 100%
⋯	Alternate System: Earnings Disregard = $.25 * WBR$ ; Tax Rate = 50%



The simple algebra of a partial benefit system involves:

E = weekly earnings,  
R = the weekly earnings disregard,  
t = the fraction of earnings deducted from benefits,  
Y = total weekly income,  
WBR = the weekly benefit rate,

and is described by a single equation:

$$Y = E + WBR - t \times (E - R),$$

a claimant works off the system when  $WBR = t \times (E - R)$  or:

$$E^* = (WBR/t) + R,$$

this is called "breakeven earnings" since  $E^* = Y^*$ .

Consider an individual with a history of earning \$20 per hour for 40 hours per week. Will a change in the in the benefit reduction tax from 100% to 50% affect whether she accepts a job paying \$10 per hour for 40 hours per week? Currently such a person would be eligible for a WBR of \$445 which might continue if the \$10 job is not accepted.<sup>4</sup> Under the present partial benefits system if she accepts the job her weekly income will be about \$556 under the alternative her income would be just over \$700.

## 6.5 Duration of the Wage Supplement

A critical parameter to set in designing a wage supplement treatment is length of time that a wage supplement will be paid. The wage supplement is intended to encourage workers to spend enough time on a new job so that they develop firm specific skills which will raise their earnings within the firm. On the other hand, the hope is that the wage supplement will result in reduced overall UI benefit payments. A balancing of these aims would suggest that one year from the date of claiming benefits is an appropriate duration for a wage supplement to continue. By setting the duration of the wage supplement at one year from the date of filing a UI claim, the supplement period will coincide with the claimant's UI benefit year.

An alternative means of limiting the duration of the supplement is to set a maximum number of dollars which may be paid out. This might be all or some part of a claimant's dollar UI entitlement remaining at the time of reemployment, which is his WBR multiplied

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<sup>4</sup>Or the WBR may drop to \$400 since the replacement rate drops to 50% for refusal of suitable work.

by his weeks of entitlement. For example if 25 weeks of benefits are available for someone with a WBR of \$300, then \$7,500 would be the maximum available for supplement payment. It might be reasonable to allow half of this amount to be available for wage supplements. This would act as a further incentive for early return to work.

## 7. Sample Design

### 7.1 Target Population

As proposed in the earlier concept design paper, the appropriate target group is comprised of UI claimants eligible to receive regular UI benefits without disqualification for any issue involving separation from the previous employer. Within the target group, incentive payments would not be made if the claimant was recalled to a previous job or placed on the job through a union hiring hall.

### 7.2 Sample Size and Site Selection

The sample size in each treatment cell is dictated by two aims: to have confidence that an ineffective policy is not implemented, and that an effective policy is not rejected. In statistical parlance, HRD Canada wants to minimize the chance of rejecting the null hypothesis that an intervention does not have an effect when it really does (probability of type I error), but it would also like to increase the probability of accepting the alternative hypothesis of an effect when one exists (probability of avoiding a Type II error, or power of the test).

Following Cohen (1988), the standard reference for power analysis in the behavioral sciences, the usual statistical requirements to meet these objectives are: (1) a statistical significance level of 5%, which means that if a program is judged effective there is only a 5% chance of being wrong, and (2) the power of statistical tests will be set at 80%, which means that when a program is effective our test will reveal it to be effective 80% of the time. More powerful tests would increase the reliability of the results, but require substantially larger samples.

With the statistical criteria established, the sample size for each treatment is determined on the basis of an estimate of the expected effect of the treatment on weeks of unemployment. In the proposed experimental designs, the sample sizes will be set to detect these effects for Canada as a whole, and for effects roughly twice that size at the provincial level.

The sample sizes are smaller for more generous treatments, because in the U.S. experiments larger bonuses generated larger responses, and a smaller sample is required to detect a larger impact with a given level of statistical confidence.

The sample size requirements listed in Table 3 are derived from statistical tables on the assumption that weeks of regular UI compensation in Canada has a standard deviation of 12.6 weeks--this was the value for 1989, and that the control group size is 15,000.

The assumption concerning the size of the control group is important because the confidence in the result will be greater the larger the sample size. Larger samples may be achieved by increasing both treatment and control groups equally, or by increasing one holding the other constant.<sup>5</sup>

Dealing with a claimant assigned to a treatment group is costly. It involves giving an enrollment interview, monitoring claimant activity, perhaps making a cash incentive payment, and maintaining data on the claimant's activity. Only the last of these costs--maintaining data--is associated with a control assigned claimant, and this cost is minimal. So that by having a large control group the size of expensive treatment groups can be reduced without loss of statistical confidence or power. For the effect sizes expected for the CRIE treatments, there are no great statistical gains for increasing the control group beyond 15,000 observations.

The information in Table 3 is headed Canada and Province. It is proposed that the treatments be conducted in five provinces: Ontario, Quebec, a maritime province (either Newfoundland or Nova Scotia), and two western provinces (perhaps Alberta and British Columbia). The treatment samples listed under the province heading are one-fifth those listed under the Canada heading.

The sample size requirements given in Table 3, assume that the full sample is evenly distributed across the five provinces in which enrollment is anticipated. To clarify the usefulness of this sample allocation consider the following example: a national random sample of 3,500 will allow detection of a 0.6 week change in UI compensation at the national level, and a 1.3 week change at the provincial level.

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<sup>5</sup> In this case the relevant measure of sample size is called the "harmonic mean." The harmonic mean is two times the product of the sample sizes divided by the sum of the sample sizes:

$$n_h = [2n_t n_c / (n_t + n_c)],$$

where  $n_t$  is the size of a treatment group and  $n_c$  is the size of the control group. By this formula it can be seen that with  $n_t = 3,500$ , and  $n_c = 15,000$  an effective sample size of over 5,500 results.

Table 3

Sample Sizes Required to Detect Treatment Effects  
with a 5% Significance Level and 80% Power

<u>Experimental Effect on Weeks Compensated</u>		<u>Effective<sup>a</sup> Sample Sizes</u>		<u>Actual Sample Sizes</u>	
Canada	Province	Canada	Province	Canada	Province
0.60	1.45	5,500	1,100	3,500	575
0.70	1.85	4,000	800	2,300	425
0.90	2.25	2,500	500	1,375	275

<sup>a</sup> Treatment Sample: The number of claimants assigned to the treatment who are eligible to participate in the experiment. The control group size is 15,000.

A final point about sample size and subgroup analyses should be made. EIC will likely want to know subgroup effects by:

- Repeater status, i.e., claimants who had collected benefits in previous years are repeaters.
- Length of entitlement.
- Province.
- Regions facing different economic conditions and circumstances.
- Dislocated worker status; i.e., those with substantial work experience facing permanent layoff.
- Age group.
- Gender.

To examine treatment impacts by subgroup, larger sample sizes are needed to yield adequate precision. For example, a four way partition of the sample by gender and age would result in samples about twenty-five percent of the average size. Such sub-group analyses can be conducted with slightly more power for all of Canada as indicated in Table 3 for individual provinces.

Regarding site selection, it would be reasonable to conduct enrollment in about 10 CECs in each of the five provinces selected. These may be selected via stratified random sampling, or in a strategic fashion. If CECs are selected with care and information is gathered at sufficiently similar comparison sites, it may be possible to conduct a matched site displacement study in a province where pairs of comparable labor markets can be identified. This may be possible in Ontario.

## 8. Administration of the Experiment

Upon review, recommendations for administration of an experiment presented in the earlier concept design paper remain reasonable and appropriate. The elements which bear repeating or elaboration are outlined in the following.

### 8.1 Procedures and Responsibility in the Local Office

It is expected that approximately 50 CECs will be involved in the experiment. A generalized set of procedures should be designed and incorporated into a Procedures Manual that gives explicit instructions to the office managers as to how claimants are to be selected for the experiment, assigned to a treatment, enrolled into the experiment, and informed about their options and responsibilities. The manual will also inform the office manager about the records to be kept and transmitted to the Central office.

The local CEC office is the key point of contact with claimants, who claim UI benefits in total ignorance of new incentive offers being tested. It is critical that each claimant, regardless of the office in which he/she files for benefits, has the appropriate opportunity to participate in the experiment, if eligible, and is provided with the correct information. To ensure that the experimental conditions are repeated exactly, the procedures and information flows must be identical in all offices.

The most important local office task is the conduct of the enrollment interview. The interview format and content should be designed by the research team and transmitted to the local office managers in a formal training process.

For the bonus and partial cash-out treatments, to help make the enrollment process consistent, a standard information sheet should be prepared. This information sheet should be presented to randomly selected claimants at the end of their benefit rights interview. The sheet should be personalized by a CEC clerk (Insurance Agent) in the presence of a claimant, and should explain the precise terms of the incentive offer for that individual. It should be presented at the very end of the benefit rights interview so that the treatment is a simple add on to the standard services provided to all UI claimants. The details of the offer should be confirmed by a letter sent from the Central Office for the experiment.

experimental design. The Central Office should also supervise the process of enrollment. Staff in the Central Office should send the appropriate letters and forms to prospective participants. They will then receive and process the Notices of Hire, telling the office that the participant has obtained employment and believes him or herself eligible for a bonus offer. The office is responsible for verifying the validity of the Notice and properly communicating with the participant. The Central office will receive, process, and verify vouchers for incentive payments. Lastly, they will authorize payment of bonuses. Central office staff must keep appropriate records and assure entries into the data base designed to carry out the evaluation.

### 8.3 Data Systems

There is need to access the UI benefit data in order to determine eligibility for enrollment and to validate submission of Notices of Hire and Vouchers for payment. It would be best if random selection of participants for the experiment could be an automated function of the claims processing system (BNOP file).

There is also need to establish a data system to monitor the flow of claimants in order to determine that the appropriate numbers of claimants are being enrolled and that payment budgets are being met. Since Canada does not have wage reporting, there is wage data only on workers who claim benefits. Thus, the wage files cannot be used for post-termination analysis of reemployment. Since this is critical to the evaluation, it will be necessary to conduct a follow-up survey of all assigned claimants, including those in the control group, to determine post-filing work experiences. Lastly there is need to construct the final evaluation data base, which will use data from the benefit files and the survey. The data systems and the programming necessary to access existing data bases will be developed during the design phase of the experiment.

### 8.4 Staff Assignment and Training

There will be both central office and local office staffs. In the Central office, there needs to be a Project Manager, an Assistant Project Manager, responsible for site supervision, a Programmer and a number of data entry and file clerks to process the information and forms. These include the UI benefit information underlining the enrollment decision, the Notices of Hire (Notice that the participant obtain an appropriate job), the Vouchers (requests for incentive payments), and the payment authorizations.

In each of the local offices (CECs), there will need to be agency personnel responsible for carrying out the assignment of claimants and conduct the enrollment interviews. The exact organizational structure for the local office activities needs to be determined.

Once assigned, all personnel in the experiment would need a short, but rigorous training in the procedures. The research team will design Training Manuals and conduct Train-the-Trainer sessions for the supervisory and management personnel involved in the

experiment. An ongoing process of staff training will be needed to assure compliance with the experimental design.

## 9. Using Results from an Experiment

### 9.1 Making Inferences from an Experiment

Bruce Meyer (1974) has pointed out three main concerns in using experimental findings to estimate impacts of an actual reemployment bonus program. They may be called the displacement effect, the take-up rate, and the entry effect.

When increased speed of return to work by treatment assigned claimants slows the return to work by claimants not assigned to a treatment, displacement has occurred. Carl Davidson and Steve Woodbury (1991b) have estimated that displacement did indeed occur in the Illinois experiment. However, they also identified a factor which may ameliorate any displacement which exists. Using a job matching simulation model to analyze a reemployment bonus, they find that increased search effort by bonus-offered workers improves the performance of the economy by creating *new* jobs since the available job openings are filled more quickly. The existence of displacement resulting from a bonus offer is an empirical question, which can best be answered in an experiment involving saturation enrollment at selected sites and monitoring of claimants at comparison sites.

In the reemployment bonus experiments, the take-up rate is the share of those qualifying for a bonus who cash one. It has been reported that in the U.S. experiments only about 65% of claimants thought to be eligible for a bonus received one. In a "real" program this proportion could be greater. However, many of those thought to be eligible may indeed not have been. It may be the case that claimants recognized their ineligibility because of placement by a union hiring hall, recall to a previous job, or a gap in their continuous reemployment. Meyer (1994) speculates that if the bonus became a regular part of the UI program the take-up rate would probably increase. However, he admits that in a program "additional people might respond to a bonus by reducing their UI spells as it became more common to find a job quickly to receive a bonus." The net effect on the benefit-cost ratio of these opposing forces may be positive, negative, or zero.

Meyer (1994) notes that there may be additional entry to UI as a result of a bonus offer. One is the increased likelihood that an unemployed person would file for benefits. This may be a problem in the United States. Rebecca Blank and David Card (1991) have estimated that only about 70% of eligible U.S. claimants receive regular UI benefits so that the potential for entry in the U.S. is significant. However, David Card and Craig Riddell (1991) find that the proportion of unemployed in Canada receiving UI benefits hovers very close to one, so that if a bonus program were implemented in Canada, there much less likelihood that UI claims would increase.

The experiments provided some other information particularly relevant to Canadian UI policy. In Illinois, because of an extended benefits program, more than half the claimants offered a reemployment bonus were eligible for 38 weeks of benefits. The remainder were eligible for only 26 weeks of state-regular UI benefits. The bonus offer reduced the duration of unemployment for claimants eligible for extended benefits, by more than double the reduction of claimants eligible for 26 weeks of benefits (see Davidson and Woodbury 1991a). The longer entitlement available to extended benefits recipients is more like that available in Canada.

## 9.2 What Should be Gained from an Experiment?

The most exciting prospects for the Canadian Reemployment Incentives experiment are that it will yield information on the incentive effects of the previously untested partial cash-out incentive design, and the promising wage supplement which has also not really been experimentally evaluated before either.

Further tests of the reemployment bonus experiments will add to the understanding about the effect of long entitled durations and higher bonus payments. This information should increase the value of previous bonus experiments and suggest new ways to examine those earlier results.

More generally, the experiment will add to the evaluation expertise within HRD Canada and the Applied Research Branch. The control sample gathered will also provide a handy data base for quick examination of future questions about program modification.

Naturally, the real aim is that by experimentally evaluating program innovations costly errors due to implementing inappropriate designs will be avoided.



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